



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/568,115

08/14/2006

Stefan Dahlke

2003P09461WOUS

5620

22116

7590

12/24/2009

SIEMENS CORPORATION
INTELLECTUAL PROPERTY DEPARTMENT
170 WOOD AVENUE SOUTH
ISELIN, NJ 08830

EXAMINER

SUNG, GERALD LUTHER

ART UNIT

PAPER NUMBER

3741

MAIL DATE

DELIVERY MODE

12/24/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/568,115	Applicant(s) DAHLKE ET AL.	
	Examiner GERALD L. SUNG	Art Unit 3741	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>2/13/2006; 3/20/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This is a first office action in response to the filing of application 10/568,115 filed on 14 August 2006.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 7-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Ewing US 5,216,886.

4. Regarding claim 7, Ewing discloses a heat shield for guiding a hot gas comprising a support structure 1, a plurality of heat shield elements 3 mounted to the support structure, each heat shield having a hot gas wall 13 in contact with the hot gas and a plurality of side walls 8 which extend from the hot gas wall toward the supporting structure to form an internal space that receives coolant flow through hole 11, a plurality of cooling gaps 5 formed by spaces between adjacent heat shields, a sealing element (braze or weld) which is capable of providing some mechanical damping (even if minimal) that is arranged between the supporting structure and the side walls, and a coolant discharge channel 7 to allow the controlled flow of the coolant from the internal space to the cooling gaps.

5. Regarding claim 8, the internal space side of the hot gas wall is impacted by the cooling air and therefore interpreted as cooled by impact cooling.

Art Unit: 3741

6. Regarding claim 9, the supporting structure contains a plurality of inlet channels 11.

7. Regarding claims 10 and 11, the heat shield is comprised of a metal alloy (nickel alloy).

8. Regarding claim 12, the limitation "the heat shield is formed by a cast process" is interpreted as a product by process where the prior art shield discloses the claimed end product, the process is given little patentable weight.

9. Regarding claim 13, the coolant discharge channel 7 is formed in the side wall of the heat shield.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 12, 15-18 and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ewing US 5,216,886 in view Pidcock et al. US 6,470,685.

Art Unit: 3741

13. Regarding claims 12, 15 and 20, referring to claim 7 above, Ewing discloses all elements except for a heat shield that is casted. Further regarding claim 20, Ewing discloses the combustion chamber for use in a jet engine where the majority of jet engines have compressors and turbines in serial flow with a combustor.

14. Pidcock teaches the casting of heat resistant tiles (heat shields) is a well known method in the art and is a simple and inexpensive means to produce such heat shields. Furthermore, in the event the Applicant raises an issues that ram jets, being a subset of jet engines, do not have compressor/turbine sets and therefore compressor/turbine sets are not inherent in all jet engines, Pidcock shows a well known configuration of a jet engine, including a compressor/turbine set, where it would have been very obvious to incorporate a combustor as disclosed by Ewing in a jet engine configuration of Pidcock.

15. One of ordinary skill in the art at the time of the invention would have found it obvious to cast the heat shields 3 of Ewing as taught by Pidcock in order to provide a simple and inexpensive means for producing the heat shields through a well known method in the art.

16. Regarding claims 16 and 21, the super alloy is nickel alloy.

17. Regarding claims 17 and 22, all of the temperature resistant elements have a surface 13 in contact with the hot gas.

18. Regarding claims 18 23, the coolant discharge channel 7 is formed in the side wall 8 of the temperature resistant element.

19. Claims 14, 19 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Ewing US 5,216,886 in view of Snyder US 2002/0116929 or combination of

Art Unit: 3741

Ewing US 5,216,886 and Pidcock et al. US 6,470,685 in view of Snyder US 2002/0116929.

20. Regarding claims 14, 19 and 24, Ewing or in the alternative, the combination of Ewing and Pidcock, discloses all elements except for a coolant discharge channel formed in the support structure.

21. Snyder teaches openings 118, 122 in between heat shields 46 in figure 2 where the openings are formed in the heat shield supporting structure and configured to admit dilution air through gaps between the heat shields.

22. One of ordinary skill in the art at the time of the invention would have found it obvious to provide cooling discharge channels in the heat shield supporting structure to admit air between the heat shields of Ewing (or Ewing and Pidcock) as taught by Snyder in order to provide a well known means of supplying dilution/film cooling air between gaps of heat shield components.

Pertinent Art

23. Particular attention should be brought to the Applicants' claimed sealing element/mechanical damping structure; where as broadly claimed any material that provides some sort of sealing will provide some mechanical damping, even if the material is poorly adapted to provide mechanical damping. Furthermore, attention should be given to the following references: *Schetter US 5,339,637; Lee US 5,363,654; Maghon US 5,431,020 (for damping); Maghon US 2003/0010038.*

Contact Information

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GERALD L. SUNG whose telephone number is (571)270-3765. The examiner can normally be reached on M-F 9am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cuff can be reached on (571) 272-6778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gerald Sung
Patent Examiner
GS
10 December 2009

/Michael Cuff/
Supervisory Patent Examiner, Art Unit 3741